

=> b reg
FILE 'REGISTRY' ENTERED AT 14:16:35 ON 31 MAR 2009
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2009 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 29 MAR 2009 HIGHEST RN 1129300-01-1
DICTIONARY FILE UPDATES: 29 MAR 2009 HIGHEST RN 1129300-01-1

New CAS Information Use Policies, enter HELP USAGETERMS for details.

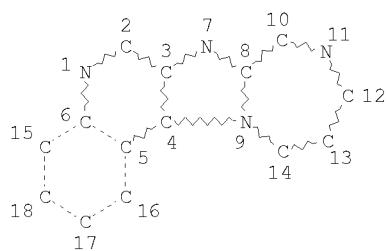
TSCA INFORMATION NOW CURRENT THROUGH January 9, 2009.

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=> d que sta 17
L5 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 18

STEREO ATTRIBUTES: NONE

L7 676 SEA FILE=REGISTRY SSS FUL L5

100.0% PROCESSED 6640 ITERATIONS
SEARCH TIME: 00.00.01

676 ANSWERS

=> b hcap
FILE 'HCAPLUS' ENTERED AT 14:16:41 ON 31 MAR 2009
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2009 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is
held by the publishers listed in the PUBLISHER (PB) field (available
for records published or updated in Chemical Abstracts after December
26, 1996), unless otherwise indicated in the original publications.
The CA Lexicon is the copyrighted intellectual property of the
the American Chemical Society and is provided to assist you in searching
databases on STN. Any dissemination, distribution, copying, or storing
of this information, without the prior written consent of CAS, is
strictly prohibited.

FILE COVERS 1907 - 31 Mar 2009 VOL 150 ISS 14
FILE LAST UPDATED: 30 Mar 2009 (20090330/ED)

HCplus now includes complete International Patent Classification (IPC)
reclassification data for the third quarter of 2008.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> d bib abs fhitstr l11 tot

L11 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2009 ACS on STN
 AN 2005:638879 HCAPLUS

DN 143:153410

TI Preparation of piperazine, [1,4]diazepane, [1,4]diazocane, and [1,5]diazocane fused imidazo ring compounds as inducers of cytokine biosynthesis for treatment of viral and neoplastic diseases
 IN Kshirsagar, Tushar A.; Grieengraber, George W.; Celebi, Abduraziz A.; Heppner, Phillip D.

PA 39 Innovative Properties Company, USA

SO PCT Int. Appl. 218 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

PATENT NO.

KIND

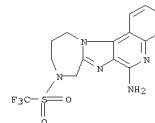
DATE

APPLICATION NO.

DATE

PI WO-2005066172 A1 20050721 2004WO-US0043474 20041222
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
 CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
 HK, HU, ID, IL, IN, IS, MT, KE, KR, KZ, L, LK, L, L, L, L, L, L,
 LK,
 NO, NZ, OM, PG, PH, PL, PT, RO, PU, SC, SD, SE, SG, SK, SL, SY,
 TJ, TM, TN, TR, TI, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: BW, GH, GM, KE, LS, MW, ME, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
 AZ, BE, BG, CR, CZ, DE, DK, DU, GR, HU, IE, IS, IT, LZ, LU, MC, NL, PL, PT,
 RO, SE, SI, SK, TR, BE, BJ, CG, CI, CM, GA, GN, GD, GW, ML,
 MR, NE, SN, TD, TG
 AU--2004312510 A1 20050721 2004AU-000312510 20041222
 CA--2552110 A1 20050721 2004CA-000355210 20041222
 EP--3192292 A3 20050713 2004EP-000305292 20041222
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, FI, RO, MR, CY, AL, TR, BG, CZ, EE, HU, PL, SK, BA,
 HR, IS, YU
 CN----1922178 A 20070228 2004CN-000042300 20041222
 JP--2007015650 I 2007101 2004JP-000047424 20041222
 IN--200602371 A 20070706 2006IN-000002371 20060628
 US-20070167476 A1 20070719 2007US-000596895 20070116
 PPAI 2003US-00533024P P 20031229
 2004WO-US0043474 W 20041222
 OS CASREACT 143:153410; MARPAT 143:153410
 GI

L11 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2009 ACS on STN (Continued)
 CN INDEX NAME NOT YET ASSIGNED



RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Title compds. I (RA, RB = independently H, halo, alk(en)yl, alkoxy, alkylthio, NH₂ and derivs.; or RACCRB = (un)substituted fused heteroaryl, fused 5- to 7-membered saturated ring, X = O, S, NH, etc., and Z = C or (un)substituted alkylene, with the proviso that the total number of C atoms contributed by X and Z = 1-3; Y = a bond, SO₂, SO₂-NH and derivs., CO, etc.; R = halo, OH, alk(en)yl, haloalkyl, alkoxy, alkylthio, NH₂ and derivs.; R₁ = H, (un)substituted alk(en)yl, heteroaryl, etc. with proviso that the phenyl ring must be an acceptor salt and was prepared as imidazoles for inducing cytokine biosynthesis in animals and in the treatment of diseases including viral and neoplastic diseases. For example, II was prepared via cyclodensation of 1,2-diamine derivative III with chloroacetyl chloride, cyclization of imidazoquinoline, BOC-protected 1,2-diamine derivative IV (not isolated) with MeSO₂Cl, oxidation/amination with NH₄NO₂ and TBHQ-deprotection. Certain I modulated cytokine biosynthesis by inhibiting production of interferon α and/or tumor necrosis factor INF- α when tested in an *in vitro* blood cell system.

IT 1044675-88-8

Ru: (Prophetic)

(Preparation of piperazine, [1,4]diazepane, [1,4]diazocane, and [1,5]diazocane fused imidazo ring compounds as inducers of cytokine biosynthesis for treatment of viral and neoplastic diseases)

RN 1044675-88-8 HCAPLUS

10 / 596895

=> d bib abs hitrn fhitstr l11 tot

10 / 596895

=> d bib abs hitstr l12 tot

L12 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2009 ACS on STN

AN 2006:677628 HCAPLUS

DN 145:145757

TI Preparation of chiral fused [1,2]imidazo[4,5-c] ring compds. as inducers of cytokine biosynthesis for the treatment of viral and neoplastic diseases

IN Grieshaber, George W.; Kshirsagar, Tushar A.; Celebi, Abdulsatir A.;

Johanneszen, Sarah C.; Danielson, Michael E.; Rice, Michael J.; Wurst, Joshua R.

PA 3K Innovative Properties Company, USA

SD PCT Int. Appl. 257 pp.

CODEN: PXXXD2

DT Patent

LA English

FAN.CNI 1

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

WO--2006074003 A2 20060713 2005WO-U50047258 20051229
WO--2006074003 A3 20071122
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
CN, CR, CY, DE, DK, DO, EC, ES, FI, GB, GD,
GR, GH, GM, HR, HU, IL, IN, IS, JP, KE, KG, KM, KR, KP, KR,
KZ, LC, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX,
MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE,
SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC,
VN, YU, ZA, ZM, ZWRW: AT, BE, BG, CH, CY, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BE, BJ,
CF, CG, CI, CM, GA, GN, GO, GW, ML, MR, NE, SN, TD, TG, BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, AM, AZ, BY,
KG, KZ, MD, TJ, TM, AP, EA, EP, GR, HU, IE,
IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL,
BG, GR, HU, IE, MZ, MK, YUAU--2005220904 A1 20050613 2005AU-000322898 20051229
CA----23592904 A1 20060713 2005CA-002552904 20051229
EP----1831226 A2 20070912 2005EP-000855766 20051229R: AT, BE, BG, CH, CY, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL,
BG, GR, HU, IE, MZ, MK, YUJP--2008526754 I 20080724 2007JP-000549590 20051229
US-20080269192 A1 20081030 2007US-000813039 20070628PRA1 2004US-00640614P P 20041230
2005US-00697257P P 20050707
2005WO-U50047258 W 20051229
OS CASREACT 145:145757; MARPAT 145:145757
GIL12 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2009 ACS on STN (Continued)
other than the C adjacent to a heteroatom; provided that the sum of the ring C atoms contributed by X and X' = 1-3; Z = O, NH and derivs., N=NH and derivs., etc.; X = bond, alk(en)yl, alkylene; RA and RB = independently H, halo, alk(en)yl, alkoxy, etc.; or when taken together RA and RB form a (un)substituted alk(en)yl, heteroalk(en)yl, etc.; RA and RB are independently H, halo, alk(en)yl, alkoxy, etc.; or when taken together RA and RB form a (un)substituted alk(en)yl, heteroaryl ring, or a (un)substituted fused 5 to 7 membered satd. ring; and their pharmaceutically acceptable salts), were prep'd. as immunomodulators for inducing cytokine biosynthesis in animals (no data) and the treatment of diseases including viral and neoplastic diseases (no data). For example, II was prep'd. via cyclocondensation of diamine III (prep. given) with Et 2-chloroethanidinolate•HCl, followed by TBDMs-deprotection in the presence of tetrabutylammonium fluoride/cyclization in THF, oxidn., and amination with NH4OH. Certain I was tested for cytokine biosynthesis by inhibiting prodn. of interferon α and/or tumor necrosis factor TNF- α when tested in an in vitro blood cell system (no data).

IT 898818-25-2E

IU: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BTOL (Biological study); PREP (Preparation); USES (Uses)

IT (drug candidate); preparation of chiral fused [1,2]imidazo[4,5-c] ring compds. as inducers of cytokine biosynthesis for treatment of viral and neoplastic diseases)

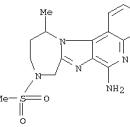
RN 898818-25-2 HCAPLUS

CN Formic acid, (2R,3S)- with 9,10,11,12-tetrahydro-12-methyl-9-(methylsulfonyl)-8H-[1,4]diazepino[1',2':1,2]imidazo[4,5-c]quinolin-6-amine (1:1) (CA INDEX NAME)

CM 1

CRN 898818-24-1

CMF C16 H19 N5 O2 S



CM 2

CRN 64-18-6

CMF C H2 O2

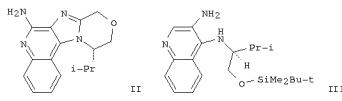
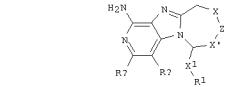
O=C=CH-OH

IT 898818-29-6F

IU: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant) or RCT (Reactant); PREP (Preparation); RACT (Reactant) or RCT (Reactant); (intermediate); preparation of chiral fused [1,2]imidazo[4,5-c] ring compds. as inducers of cytokine biosynthesis for treatment of viral and neoplastic diseases)

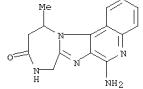
RN 898818-29-6 HCAPLUS

CN 1OH-[1,4]Diazepino[1',2':1,2]imidazo[4,5-c]quinolin-10-one, 6-amino-8,9,11,12-tetrahydro-12-methyl- (CA INDEX NAME)



AB Title compds. I (X = a bond, straight or branched alkyne, optionally having a substituent at a C other than the C adjacent to a heteroatom; X' = straight or branched alkyne, optionally having a substituent at a C

L12 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2009 ACS on STN (Continued)



=> b uspatall
FILE 'USPATFULL' ENTERED AT 14:17:19 ON 31 MAR 2009
CA INDEXING COPYRIGHT (C) 2009 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'USPATOLD' ENTERED AT 14:17:19 ON 31 MAR 2009
CA INDEXING COPYRIGHT (C) 2009 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'USPAT2' ENTERED AT 14:17:19 ON 31 MAR 2009
CA INDEXING COPYRIGHT (C) 2009 AMERICAN CHEMICAL SOCIETY (ACS)

=> d bib abs hitrn fhitstr 113 tot

L13 ANSWER 1 OF 1 USPATFULL on SIN
 AN 20071391295 USPATFULL
 TI Piperazine, [1,4]Diazepane, [1,4]Diazocane, and [1,5]Diazocane fused imidazo ring compounds
 IN Kurn, Eagan, Peter A., Woodbury, MN, UNITED STATES
 Griesgraber, George W., Eagan, MN, UNITED STATES
 Celebi, Azim A., Clark, NJ, UNITED STATES
 Heppner, Philip D., Forest Lake, MN, UNITED STATES
 PI US-20070167476 A1 20070719
 AI 2004US5-000596895 A1 20041222 (10)
 2004WC-US043474 20041222
 20070116 PCT 371 date
 PRAI 2003US-000533024B 20031229 (60)
 DT UTILITY
 FS AGRICULTURE
 LREP 3M INNOVATIVE PROPERTIES COMPANY, PO BOX 33427, ST. PAUL, MN,
 55133-3427, US
 CLMN Number of Claims: 37
 ECL Exemplary Claim: 1
 DROW No Drawings
 LN.CNT 5250

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
 AB Piperazine, [1,4]diazepane, [1,4]diazocane, and [1,5]diazocane fused imidazo ring compounds (i.e., imidazopyrimidines, tetrahydropyrimidinol imidazopyrimidines, tetrahydropyrimidinyl imidazopyrimidines, and imidazopyridines), pharmaceutical compositions containing these compounds, intermediates, methods of making, and methods of use of these compounds as immunomodulators, for inducing or inhibiting cytokine biosynthesis in animals and in the treatment of diseases including viral and neoplastic diseases are disclosed.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

10 / 596895

=> d bib abs hitstr l14 tot

L14 ANSWER 1 OF 1 USPATFULL on STIN
 AN 2008:306705 USPATFULL
 TI Chiral Fused [1,2]Imidazo[4,5-C] Ring Compounds
 IN Geissgraber, George W., Eagan, MN, UNITED STATES
 Kohl, Pragnell, Michael J., Burnsville, MN, UNITED STATES
 Celebi, Azim A., Palo Alto, CA, UNITED STATES
 Slania, Sarah J., Eagan, MN, UNITED STATES
 Danielson, Michael E., St. Paul, MN, UNITED STATES
 Rice, Michael J., Oakdale, MN, UNITED STATES
 Wurst, Barbara R., North St. Paul, MN, UNITED STATES
 PA Cole, Pharmaceutical Group, Inc., Wellesley, MA, UNITED STATES (U.S.
 corporation)
 PI US-20080269192 A1 20081030
 AI 2005US-000813039 A1 20051229 (11)
 2005WO-US0504725B 20050707 (60)
 PPAI 2004US-000640614P 20041230 (60)
 2005US-000697257P 20050707 (60)
 DT Utility
 FS APPLICATION
 LREP NOEL GREENFIELD & SACKS, P.C., 600 ATLANTIC AVENUE, BOSTON, MA,
 02210-2206, US
 CLMN Number of Claims: 37
 ECL Exemplary Claim: 1-4
 DPPN No Drawings
 LN.CNT 7251
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.
 AB Fused [1,2]imidazo[4,5-c] ring compounds (e.g., imidazo[4,5-c]quinolines, 6,7,8,9-tetrahydroimidazo[4,5-c]quinolines, imidazo[4,5-c]naphthyridines, 6,7,8,9-tetrahydroimidazo[4,5-c]naphthyridines) with a $-\text{CH}(-\text{X})_{\text{sub},1-\text{R}}\text{.sub},1\text{-J}$ -group in the fused ring at the 1-position of the imidazo ring, pharmaceutical compositions containing the compounds, intermediates, methods of making the compounds, and methods of use of these compounds as immunomodulators, for inducing cytokine biosynthesis in animals and in the treatment of diseases including viral and neoplastic diseases, are disclosed.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> d his

(FILE 'USPATFULL, USPATOLD, USPAT2' ENTERED AT 13:19:31 ON 31 MAR 2009)
DEL HIS Y

FILE 'HCAPLUS' ENTERED AT 14:07:55 ON 31 MAR 2009
L1 1 US20070167476/PN

FILE 'REGISTRY' ENTERED AT 14:08:25 ON 31 MAR 2009

FILE 'HCAPLUS' ENTERED AT 14:08:25 ON 31 MAR 2009
L2 TRA L1 1- RN : 1057 TERMS

FILE 'REGISTRY' ENTERED AT 14:08:25 ON 31 MAR 2009
L3 1057 SEA L2
L4 352 L3 AND NCNC2-NC5-C6-NC2NC3/ES
L5 STR
L6 37 L5
L7 676 L5 FULL
SAV TEM J895C1G1/A L7
L8 676 L7 AND NCNC2-NC5-C6-NC2NC3/ES
L9 351 L8 AND L3
L10 325 L8 NOT L9

FILE 'HCAPLUS' ENTERED AT 14:13:37 ON 31 MAR 2009

FILE 'STNGUIDE' ENTERED AT 14:13:43 ON 31 MAR 2009

FILE 'HCAPLUS' ENTERED AT 14:14:07 ON 31 MAR 2009
L11 1 L9
L12 1 L10

FILE 'USPATFULL, USPATOLD, USPAT2' ENTERED AT 14:14:55 ON 31 MAR 2009
L13 1 L9
L14 1 L10

FILE 'HCAPLUS' ENTERED AT 14:15:10 ON 31 MAR 2009

FILE 'STNGUIDE' ENTERED AT 14:15:28 ON 31 MAR 2009

FILE 'REGISTRY' ENTERED AT 14:16:35 ON 31 MAR 2009

FILE 'HCAPLUS' ENTERED AT 14:16:41 ON 31 MAR 2009

FILE 'USPATFULL, USPATOLD, USPAT2' ENTERED AT 14:17:19 ON 31 MAR 2009

=>